

St. Thomas School, Dhurwa, Ranchi – 4.

Class: 5

Subject: SCIENCE

Chapter-9: Work and energy

Answers of exercise questions (Pg. 117-118)

1. Choose the correct answer:-

a. Coal b. Sound energy c. Electrical energy d. Heat energy e. We need to use them judiciously.

2. Fill in the blanks: -

a. Energy b. Light energy c. Non- renewable resources of energy d. Wind energy e. Solar energy

3. Match the following:-

- a. Solar energy - Obtained from the sun
- b. Mechanical energy - Due to position or motion
- c. Sound energy - Produced by vibrating objects
- d. Chemical energy - Contained in fuels and foods
- e. Electrical energy - Run appliances

4. Short answer questions:-

- a) Work is said to be done when a force applied on an object displaces it in the direction of the force itself.
- b) We get energy by eating food that are rich in carbohydrates and fats. Some examples of such food are cereals, sugar, bread etc.
- c) A fuel is a substance that is burnt to produce heat, e.g. wood, coal and LPG.
- d) Two uses of solar energy are
 - i. Green Plants use solar energy to make foods.
 - ii. Solar Energy is used to cook food, as in solar cookers.
- e) The energy possessed by water stored at a height behind a dam in a reservoir is mechanical energy. When this water is allowed to fall, it can rotate the turbine and produce electricity.

5. Long answer questions: -

a.

Renewable sources	Non renewable sources
i) These resources are present in ample quantity in nature. ii) It can last for long periods of time. iii) Examples – solar energy, wind energy and hydro energy.	i) These energy resources are present in limited amount in nature. ii) It will get completely used up with time. iii) Examples – coal, petroleum and natural gas.

- b. The energy provided by the sun is called solar energy. The sun's rays give us warmth and light as they have heat energy and light energy. Green plants use solar energy to make food which is essential for the survival of all living organisms. Solar energy is also used to cook food in the solar cooker.
- c. Work and energy are closely related. Work can only be done with the help of energy or we can say, energy is the ability to do work. For example – for playing football, we need energy and once the energy is spent, we get tired.
- d. The amount of energy required depends on the nature of work, for example, we need less energy to walk and more energy to run.
- e. The things around us that provide us energy to do various types of work are called sources of energy, e.g.
- i) Sun is the main source of energy on earth. It gives us heat and light.
 - ii) Moving air and water have energy which is used to generate electricity on large scale.
 - iii) Fuels such as coal, kerosene, gas etc. have stored chemical energy which can be released and utilized by burning them.

Chapters 9

Work and energy

Practice Paper with Answers

I. Give the technical term for the following.

1. Energy resources that can last for long periods of time

Ans. Renewable resources of energy

2. The electricity produced by the energy of flowing water

Ans. Hydro-electric energy

3. Full form of LPG

Ans. Liquefied Petroleum Gas

4. The energy possessed by water stored at a height behind a dam in a reservoir

Ans. Mechanical energy

5. Energy produced by the vibration of objects

Ans. Sound energy

II. Fill in the blanks with the appropriate terms.

1. A push and pull is called force.

2. Electrical energy is produced at large quantities in power stations.

3. The sun is the main source of light energy, during the day.

4. Sound energy enables us to hear.

5. The food we eat contains chemical energy.

III. Give two examples for each of the following.

1. Fossil fuel

Ans. (a) Coal (b) Petroleum

2. Work done

Ans. (a) Boy kicking a football (b) A weightlifter lifting weight

3. Renewable energy

Ans. (a) Solar energy (b) Wind energy

4. Two mediums through which sound can travel

Ans. (a) Air (b) Water

5. Work not done

Ans. (a) Reading a book (b) Standing still with a heavy load on head

IV. Differentiate between the following on the basis of the words given in the bracket.

1. Renewable and nonrenewable resources (availability)

Ans	<u>Renewable resources</u>	<u>Non-renewable resources</u>
	These are present in ample quantity in nature.	These resources are present in limited amount in nature.

2. Wind energy and light energy (Use)

Ans	<u>Wind energy</u>	<u>Light energy</u>
	Wind energy is used to move the fans of a windmill.	It enables us to see things.

V. Define the terms.

1. Mechanical energy:
Mechanical energy is the energy possessed by an object due to its position or motion.
2. Energy:
Energy is the ability to do work.
3. Transformation of energy:
The change of energy from one form to another is called transformation of energy.
4. Non-renewable energy:
Energy obtained from sources such as coal, petroleum, etc., that get exhausted forever is called non-renewable energy.

VI. Write true or false.

1. If there is no displacement in an object then no work is considered to be done. - True
2. We require the same amount of energy to do all our work. - False
3. Solar energy can produce electricity. - True
4. Work can only be done with the help of energy. - True

VII. State the energy transformation in each of the following.

1. Windmills
Ans. Wind energy to mechanical energy
2. Loudspeakers
Ans. Electrical energy to sound energy
3. Electric heater
Ans. Electrical energy to heat energy
4. Solar calculators
Ans. Solar energy to electrical energy

VIII. We must judiciously use the non-renewable sources of energy. Give reason.

Ans. Non-renewable sources of energy are available in limited supplies and will not last for long. So we need to use them judiciously.

IX. Draw neat and labelled diagrams of

- i. Two energy-giving food
- ii. A device that uses the energy of direct sunlight to cook food

Ans. i. Refer to page no. 112
ii. Refer to page no. 113